

**IMPLANTABLE MEDICAL DEVICE HAVING
FLAT ELECTROLYTIC CAPACITOR WITH DIFFERING SIZED
ANODE AND CATHODE LAYERS**

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ABSTRACT OF THE DISCLOSURE

Flat electrolytic capacitors, particularly, for use in implantable medical devices (IMDs), and the methods of fabrication of same are disclosed. The capacitors are formed with an electrode stack assembly comprising a plurality of stacked capacitor layers each comprising an anode sub-assembly of at least one anode layer, a cathode layer and separator layers wherein the anode and cathode layers have differing dimensions that avoid electrical short circuits between peripheral edges of adjacent anode and cathode layers but maximize anode electrode surface area. The electrolytic capacitor is formed of a capacitor case defining an interior case chamber and case chamber periphery, an electrode stack assembly of a plurality of stacked capacitor layers having anode and cathode tabs disposed in the interior case chamber, an electrical connector assembly for providing electrical connection with the anode and cathode tabs through the case, a cover, and electrolyte filling the remaining space within the interior case chamber. The plurality of capacitor layers and further separator layers are stacked into the electrode stack assembly and disposed within the interior case chamber such that the adjacent anode and cathode layers are electrically isolated from one another.

20 The anode layer peripheral edges of the anode sub-assemblies of the stacked capacitor layers extend closer to the case side wall than the cathode peripheral edges of the cathode layers of the stack of capacitor layers throughout a major portion of the case chamber periphery. The separator layer peripheral edges extend to the case periphery and space the anode layer peripheral edges therefrom. Any burrs, debris or distortions along or of any of the anode layer peripheral edges causing the anode layer edges to effectively extend in the electrode stack height direction causes the anode layer peripheral edges having such tendency to contact an adjacent anode layer. In this way, anode layer surface area is maximized, and short circuiting of the anode layers with the cathode layers is avoided. A case liner can also be disposed around the electrode stack assembly periphery.